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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/993,522	11/27/2001	Yong Sung Ham	049128-5042	8126

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EXAMINER	
WU, XIAO MIN	

ART UNIT	PAPER NUMBER
2674	3

DATE MAILED: 06/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/993,522	HAM, YONG SUNG	
	Examiner	Art Unit	
	XIAO M. WU	2674	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *27 November 2001* .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1,2,7-10,15-18,20 and 21* is/are rejected.

7)☒ Claim(s) *3-6,11-14 and 19* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *2* .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 15 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 15 recites the limitation "the delay source data" in 3. There is insufficient antecedent basis for this limitation in the claim.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 1, 2, 7, 8-10, 16-18, 20 and 21are rejected under 35 U.S.C. 102(b) as being anticipated by Sawada (US Patent No. 6,078,317).

As to claim 1, Sawada discloses a method of driving a liquid crystal display, comprising: setting reference modulated data (13, 16, Fig. 1); detecting a driving frequency of source data for a current frame (14, 15, 17, Fig. 1); and adjusting the reference modulated data (16, 19, 21, Fig. 1) in accordance with the detected driving frequency to modulate the source data (e.g. as shown

in Figs. 1 and 4, the interpolation processing circuit 16 adjusting the modulated circuit 13 based on the different frequencies such as horizontal frequency and frequency of pixel clock).

As to claims 2, 9, Sawada discloses the reference modulated data are set (e.g. x2, x1.6 or x1.25 interpolation) based on a desired reference frequency.(e.g. 31.5khz, 37.8 kHz and 48.3khz, respectively).

As to claim 7, Sawada discloses that if the input data is equal to the reference modulated data (e.g. 1280x960), no interpolation is needed.

As to claim 8, Sawada discloses a method of driving a liquid crystal display, comprising: setting reference modulated data (13, 16, Fig. 1); dividing a frequency band for each constant frequency band .(e.g. 31.5khz, 37.8 khz and 48.3khz for horizontal frequencies); setting a different weighting value for each frequency band (e.g. x2, x1.6 or x1.25 interpolation); detecting a driving frequency of source data (15, Fig. 1); determining the frequency band including the detect driving frequency; and assigning a weighting value of the frequency band including the driving frequency to the reference modulated data to adjust the reference modulate data, thereby modulating the source data (see Fig. 4).

As to claim 10, Sawada discloses a driving apparatus for a liquid crystal display, comprising: a mode detector(15, Fig. 1) detecting a driving frequency of current source data; and a modulator (16, 17, Fig. 1) selecting reference modulated data from previously registered data (13, Fig. 1) and adjusting the selected reference modulated data in accordance with the detected driving frequency.

As to claims16, 18, Sawada discloses a data driver(22, 23, Fig. 1) applying data outputted from the modulator to a liquid crystal display panel; a gate driver applying a scanning signal to

the liquid crystal display panel; and a timing controller (14, 17, 100) applying the current source data to the modulator and the mode detector and controlling the data driver and the gate driver.

As to claim 17, Sawada discloses a driving apparatus for a liquid crystal display, comprising: a mode detector (15, Fig. 1) detecting a driving frequency of current source data; and a modulator (16, 17, Fig. 1) selecting reference modulated data from previously registered data (13, Fig. 1), setting a different weighting value for each frequency band having a plurality of frequency ranges (e.g. x2, x1.6 or x1.25 interpolation), and assigning a weighting value of the frequency band including the detecting frequency to the reference modulated data (see Fig. 4)

As to claim 20, note the discussion of claims 10 and 16 above.

As to claim 21, note the discussion of claims 17 and 18 above.

Allowable Subject Matter

5. Claims 3-6, 11-14 and 19 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

Conclusion

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The US Patents 5,815,135, 5,986,636, 6,046,737, 6,348,931, and Pub. No. US2002/000150016, US2002/0030652, US2003/0048247 are cited to teach a timing circuit for controlling a display device.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Xiao Wu whose telephone number is (703) 305-4721.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Richard Hjerpe, can be reached on (703) 305-4709.

Any response to this action should be mailed to:

Commissioner of Patents and Trademarks
Washington, D.C. 20231

or faxed to:

(703) 872-9314

Hand-delivered responses should be brought to Crystal Park II, 2121 Crystal Drive, Arlington. VA., Sixth Floor (Receptionist).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 Customer Service Office whose telephone number is (703) 306-0377

xw
June 2, 2003

XIAO WU
PRIMARY EXAMINER
ART UNIT 2674